

REMARKS

Status of Claims

Applicants have not canceled any claims nor added any new claims. Accordingly, claims 1-20 remain pending.

Claims Indicated to be Allowable

Claim 7 has been rewritten in independent form. Accordingly, claims 7-12 should now be allowed.

35 U.S.C. §102(b)

Claim 1-6 and 13-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by Heide, U.S. Patent No. 5,701,104. Applicants request reconsideration of the rejection in view of the foregoing amendments and for the following reasons.

Claims 1, 13 and 17 are the independent claims among the claims that have been rejected by Heide. Each of these claims has been amended to include in the combination that the dielectric block is cylindrical and is disposed to couple with the microstrip line in a manner that a base surface of the cylindrical dielectric block is substantially parallel to a surface of the substrate on which the microstrip line is

formed. Further, each of these claims has been amended to include that the cylindrical dielectric block is to resonate in at least one of the higher order modes. Support for the amendment to the independent claims is found in Figs. 1, 6B and 10. For example, Fig. 1 shows a microstrip line 3 formed on an alumina substrate 2 and a cylindrical dielectric block 1 disposed on the microstrip line 3, which are coupled with each other. Also, see page 11, lines 8-24 of the specification.

In the present invention, the dimension of the dielectric block is such that the resonance frequency of the lowest order mode of a dielectric resonator is lower than a desired oscillation frequency and the resonance frequency band of one of the higher order modes covers the desired oscillation frequency. This is set forth on page 5, lines 12 to page 6, line 11 of the specification, for example. Further, the cylindrical dielectric block resonates in at least one of the higher order modes. That is, the resonator is made to use a higher order mode, which is one other than the lowest order mode. For example, as shown in Figs. 6A and Fig. 6B, when the resonance frequency is 76 GHz (a higher order mode), a sharper peak of the characteristic curve near this frequency occurs and a higher Q factor of the resonator is attained. Accordingly, by using a dielectric resonator that utilizes the

higher order mode as a resonator it becomes possible to reduce the conductor loss, and to enhance the Q factor of the resonator. Therefore, it becomes possible to configure a resonator with low phase noise according to the invention.

Heide discloses an oscillator with cylindrical dielectric blocks DR1 and DR2, as shown in Fig. 3. The dielectric block DR2 resonates at the higher order mode, however, its base is not parallel to the substrate. As for dielectric block DR1, its base is parallel to the substrate, however, it resonates in its fundamental mode or lowest frequency mode. See col. 4, lines 12-22 of Heide, for example. Accordingly, the reference does not anticipate or render obvious the invention as claimed. Therefore, the 35 U.S.C. §102(b) rejection should be withdrawn.

Conclusion

In view of the foregoing amendments and remarks,
Applicants contend that the above-identified application is
now in condition for allowance. Accordingly, reconsideration
and reexamination is requested.

Respectfully submitted,



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